National Aeronautics and Space Administration

# MARSHALL STAR

Serving the Marshall Space Flight Center Community

Sept. 3, 2009

Marshall Director Robert Lightfoot speaks to the Marshall team.

## *Lightfoot: 'We are Marshall'*

## New director emphasizes teamwork, focus

*By Rick Smith*

Marshall Space Flight Center Director Robert Lightfoot met with Marshall team members in an all-hands session for the first time on Sept. 1 to share his management style and guiding principles and to discuss the future of the center.

He stated that one of his goals is to make the center, with all of its diverse elements, into a unified team, saying "We are Marshall."

Lightfoot, who was named center director on Aug. 24, emphasized that Marshall's most important asset is its people. He complimented the center's workforce on its many accomplishments, from preparing the Ares I-X for flight to working foam loss issues on the external tank. He called Marshall workers "a tremendous team." He challenged the Marshall team – the standing-room-only crowd gathered with him in Morris Auditorium and those watching on Marshall TV and Desktop TV – to stay focused on their tasks and

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## *NASA, Marshall rated among top places to work in federal government*

*By Amie Cotton*

NASA was named the No. 3 best place to work in the federal government in a recent national survey of employees in 30 federal agencies.

The Partnership for Public Service – a Washington-based non-profit, nonpartisan organization that works to revitalize the federal government – conducted the poll of more than 212,000 civil servants.

The Marshall Space Flight Center was rated No. 15 of 216 federal installations surveyed. Within NASA, Marshall was rated No. 2, following the Johnson Space Center in Houston.

Among other findings of the survey: Marshall was rated as one of the top five organizations in eight of the 14 categories that make up the best places to work profile. NASA ranked second in multiple categories including strategic management, training and development, effective leadership and support for diversity.

"After four years of survey analysis, we are proud that the Marshall Center has continued to rank as one of the top places to work in the federal government," said Robin Henderson, Marshall's associate director. "Marshall's top 'best-in-class' scores in teamwork, effective leadership and training and development are indicative of our strong and capable work force at Marshall which continues to lead our country in NASA's mission to space."

For more information on the survey results, visit http://data.bestplacestowork.org/bptw/detail/NN00.

*Cotton, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

## Discovery launches Aug. 28 to 'rack up' new science

*By Sanda Martel*

Space shuttle Discovery's Aug. 28 launch was described by Steve Cash, manager of the Shuttle Propulsion Office, as "perfect" and "something the Marshall Space Flight Center team can be proud of."

"There was no significant foam loss on the external tank – just a small area at the intertank and hydrogen tank flange, and that is within the acceptable limits," said Cash. The space shuttle main engines and solid rocket boosters had perfect performance, Cash added.

Shuttle Discovery's launch from the Kennedy Space Center, Fla., came

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*Return to sender…*

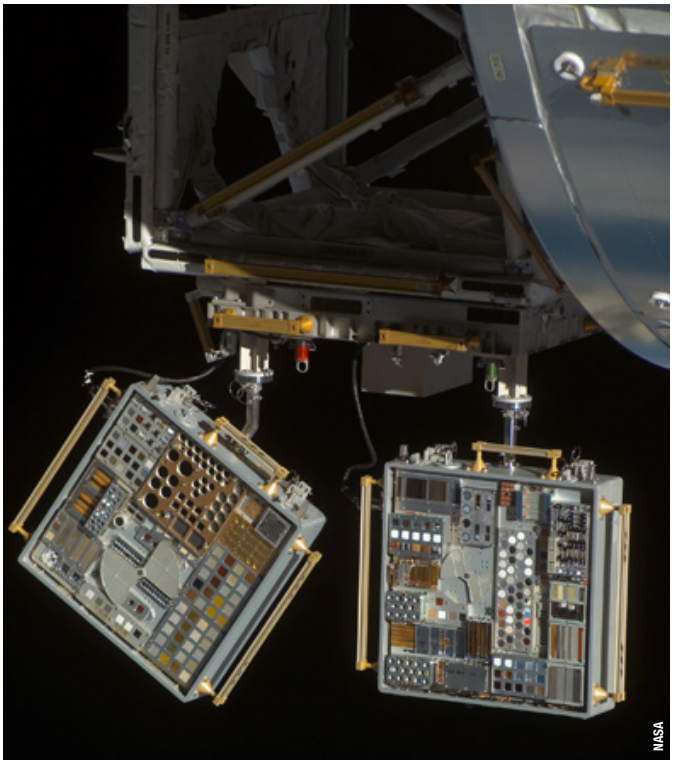
# MISSE-6 comes home after more than a year in space

*By Lori Meggs*

It's been eight years since the first Materials International Space Station Experiment, or MISSE, arrived at the orbiting laboratory. During that time, more than 4,000 materials samples have been placed outside the space station to test how they react to the harsh environment of space.

The fourth set of test hardware in the experiment series – MISSE-6A and 6B – launched aboard space shuttle Endeavour in March 2008. After more than a year of exposure attached to the station's exterior, several hundred materials samples are returning to Earth with the STS-128 space shuttle crew that launched on shuttle Discovery from the Kennedy Space Center, Fla., on Aug. 28.

During a planned spacewalk, STS-128 astronauts Danny Olivas and Nicole Stott will remove MISSE-6A and 6B from outside the European Space Agency's Columbus Laboratory.



The Materials International Space Station Experiment attached to the orbiting laboratory on the station.

The MISSE-6A and 6B investigators are studying more than 400 new materials that could be used in advanced reusable launch systems and advanced spacecraft systems. Those materials include silicone rubber seal materials planned for use on NASA's Orion crew exploration vehicle; insulation materials for use on NASA's Altair lunar module; paints for lunar power systems; and other optical, electronic, and thermal control materials designed to help protect the next generation of spacecraft.

Investigators will evaluate these samples for their reaction to direct sunlight, radiation, temperature extremes and atomic oxygen erosion. Atomic oxygen is the major component of the low-Earth-orbit space environment. The findings will provide a better understanding of the durability of these materials.

The MISSE program is managed by NASA's Langley Research Center in Hampton, Va., and the U.S. Naval Research Laboratory in Washington, and includes investigators from the Marshall Space Flight Center; NASA's Glenn Research Center in Cleveland, Ohio; Air Force Research Laboratory at Wright-Patterson Air Force Base, Ohio; Sandia National Laboratory, N.M.; Boeing Phantom Works in Renton, Wash.; and Aerospace Corp. in El Segundo, Calif. The Department of Defense Space Test Program is responsible for integration of all the MISSE passive experiment containers with the space shuttle and for the launch and on-orbit operations of the experiments.

Marshall Center engineer Miria Finckenor is one of the MISSE-6A and 6B investigators studying heat shield materials that could be used on the Orion vehicle and aluminum-lithium alloys to save weight on lunar and Mars missions.

"It will be fascinating to see how these latest MISSE samples have withstood the space environment," said Finckenor. "The data from these materials will continue to help engineers and scientists improve space environment models and ground simulation testing."

Kim de Groh is one of the Glenn Research Center's MISSE investigators studying how atomic oxygen affects spacecraft surface materials. For her, it's not only about conducting valuable NASA research; it's also about inspiring the next generation of NASA scientists and engineers.

"The majority of my MISSE flight experiments engage high school girls in the investigations," said de Groh. "The students, from Hathaway Brown School in Shaker Heights, Ohio, help conduct pre-flight research, such as obtaining pre-flight mass measurements. They mount samples into special flight holders prior to launch, and they help analyze the samples once they return from space."

De Groh said the students begin working with NASA as freshmen or sophomores and continue through their high school years. "So far, these students have collectively earned more than $80,000 in scholarships from their performance at prestigious national and international science fairs," she said.

Glenn Research Center scientists also are testing seals for the Orion Advanced Docking and Berthing System. The seal

*See **MISSE** on page 6*

# Office of Center Operations honors team members for contributions critical to success of Marshall

The Marshall Space Flight Center delivers some amazing products – from science projects which ultimately improve life on Earth to propulsion systems that power space vehicles, as well as our imaginations. And behind every success stands a team of highly trained and dedicated professionals making it possible – the civil service and contractor employees of Marshall's Office of Center Operations, or OCO.

More than 700 Office of Center Operations team members enjoy food and festivities at the organization's all-hands awards ceremony and appreciation event in Activities Building 4316.

The OCO work force is comprised of skilled individuals who provide a host of services – ensuring the safety of the center and its assets; transporting program-critical hardware; providing property management and transportation; providing medical and environmental assistance; providing facilities support; providing operations support for the Michoud Assembly Facility in New Orleans; and managing labor relations.

The Office of Center Operations provides support, in various forms, to all center programs and projects.

To recognize these contributions to the center's success, the Office of Center Operations held an all-hands awards ceremony and appreciation event Aug. 25 at Activities Building 4316. More than 700 team members attended. The event featured live entertainment and a catered lunch, served by OCO managers and volunteers. "It was our way of saying 'thank you' to the individuals who work so diligently day in and day out to make it possible for Marshall to do what we do," said Ann McNair, director of the Office of Center Operations.

"We were all so excited to have the opportunity to bring the entire team together for this event and express our gratitude for the job each person does every day," McNair said. "It really gave a sense of the magnitude of support that is provided by the Center Operations team, seeing the team members all together in one room. They literally enable the center's success, so it was important that we take this time to recognize each one and say, 'thank you!'"

OCO office managers recognized individuals and teams for significant accomplishments during the past year. Manager's awards for outstanding accomplishments were presented to:

- Timothy Austin, Erica Lane Enterprises
- Amy Black, NASA
- Lana Cucarola, Digital Fusion
- Clay Dayton, R.W. Beck
- Darryl Ford, EG&G
- Susan Garrett, SEI
- Phillip Hendrix, NASA
- Jane Hill, NASA
- LeAnn Holder, EG&G
- Earnest Holland, EG&G
- Truman Kimbrough, Gana A'Yoo
- Jeremiah Kolb, CH2M Hill
- John Nebrig, NASA
- Phan Nguyen, NASA
- Don Pollitz, NASA
- Archie Robinson, Chugach
- Joseph Smith, NASA
- Regina Smith, EG&G
- Glenn Thomas, NASA

Team awards were presented to the following:

- Mobile Command Center In-service and Commissioning Team, for exemplary performance in the integration of the Mobile Command Center into the Protective Services Office in support of both Continuity of Operations and Emergency Response at the Marshall Center and Michoud.
- Agency-wide Export Control Annual Review Team, for outstanding planning and implementation of the agency-wide export control annual review hosted by Marshall.
- IDMax Integration Team, for exemplary performance in the integration of the IDMax process supporting personnel security at Marshall and Michoud.

# Physical inventory of NASA bar-coded property to begin Oct. 1

A physical inventory of all NASA-tagged, bar-coded property at the Marshall Space Flight Center will begin Oct. 1. The inventory will be conducted by Marshall's Logistics Services Office, part of the Office of Center Operations.

All equipment in team members' file cabinets, desks and other storage areas must be made available for scanning by the inventory teams. All controlled equipment documented on an individual's "Mobile Equipment Property Pass" also must be made available for inventory. Property passes are assigned to those people carrying government equipment on or off Redstone Arsenal.

The Logistics Service Office has posted the 2009 physical inventory schedule on Inside Marshall. Managers are asked to review the schedule and inform their employees, including contractors and off-site workers, of the inventory schedule for their department. If absences are anticipated during an inventory visit, users must make arrangements with management for an alternate time.

For more information, visit Inside Marshall or http://inside.msfc.nasa.gov/announcements/2009_physical-inventory.html. For questions, contact Inge Kuberg at 544-5678 or Amanda Overcast at 544-3193 prior to the scheduled visit.

# *Marshall's Identification & Registration Office to be temporarily relocated*

The Protective Services Identification & Registration Office in Building 4312 will be relocating to Building 4612, Room 1020, Sept. 8-13. During this relocation, limited services will be provided at the lobby reception in Building 4200. Visit Inside Marshall for more information. For emergencies, contact the lobby reception at 544-5266.

# Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Sept. 10, is 4:30 p.m. Thursday, Sept. 3.

### *Miscellaneous*

Appaloosa Philly Red Roan with white blanket, call for more details. 728-5768

10-week-old AKC Mini Schnauzer, black, female, first two sets shots, crate trained, $350 negotiable. 337-3162

Entertainment center, $50; twin headboard, frame, $120; twin mattress, box springs, $75; bedding, $35. 714-0026

Full-blooded Boxer and Pits, parents on premises, Boxers, $50; Pits, $75. 227-6540

Sofa and chair, wood trim, matching ottoman; leather rocker/recliner. 772-3800

Peg-Perego battery-powered toy John Deere "Gator," $175. 885-0851

Mizuno MP-32s RH Men's golf clubs, 3-PW, $350. 303-7952

Two contemporary dark green chairs by Thayer Coggin, $125 each, both for $225. 585-3594

DeWalt DW733 13" Planer, $350; DeWalt DW682 Biscuit Joiner, $125. 682-3828

New Zealand Kiko goats, 6 months old, purebred, NARC registered, DNA parentage certified. 828-9494

Solid oak hutch, 56"L X 66"H, $800 firm. 971-5990

Amana side-by-side white refrigerator, 25 cubic feet, $150. 425-1762

20-inch television with remote, $75 obo. 684-7936

Set of three double-matted, gold-framed pictures, hummingbirds/flowers, burgundy, aqua, pink, $125. 656-8507

Sewing and embroidery machine by Husqvarna Viking, designer SE model, original accessories. 828-5303

Two Tennessee vs. W.Kentucky tickets, section PP/Row 6, regular price of $40 each. 652-2787

Full-size bed, dresser with mirror, brown, $60 obo. 653-7350

RainSoft water purification system, $1,600. 783-3430

Brand new tires, 235/60/16. 436-1087

1950s contemporary dresser, mirror, chest, $350; 1980s Drexel contemporary king headboard, night stands, $200. 851-0893

Tailgater Thermos Grill2Go Fire'N'Ice roll-around combination propane griller/cooler, $100. 233-0705

Cannondale Criterum bicycle, Suntour, profile bar, Cateye computer, cleat pedals, extras, $575. 233-4839

5x8 floor rug, eggplant with beige and olive accents, $75. 658-5678

Hitch tow receiver Class IV equalizer, wiring harness, fits 93-98 Grand Cherokee, $75 obo. 655-3324

Engine hoist, 2 ton, $110. 783-3428

### *Vehicles*

2008 KX250F, $3,400 obo. 615-417-3157

2006 Chrysler Pacifica Touring, third row, red, 25k miles, $13,000. 797-1300

2005 Nissan Pathfinder LE, beige, leather interior, V6, tow package, 66k miles, $16,700. 961-7404

2003 Impala PW, PDL, 16k miles, $10,000. 683-5793

2002 Coleman Cottonwood popup, AC, stove, fridge, awning, electric brakes, new tires, sleeps eight, $3,500. 777-4439

2000 Ford Ranger extended cab, $3,500. 541-8030

2000 Mercedes ML430 SUV, white, loaded, leather, entertainment package, sunroof, navigation, $6,995 obo. 520-2802

1999 Toyota Tacoma Pre-runner, tow package, bedliner, CD, AC, 137,600 miles, $5,900. 830-6584 or 468-5728

1998 Harley Sportster 1200 Custom, lots of chrome, can e-mail pic, 9,875 miles, $6,600. 541-7825

1997 Honda Recon 250TRX 4-wheeler, $1,200. 655-6348

1996 Dodge Dakota truck, 4WD, auto, two door, extended cab, 143k miles, $2,000. 881-1895

1995 Buick Regal, 110k miles, AC, $1,500. 417-1957

M36A2 2.5-ton Army cargo truck, long wheelbase, dropside bed, bows, cover, $4,500. 508-1558

### *Wanted*

Furniture donation: sectional couch, recliners, tables/lamps, king bed, two queen futons, patio, dining. 631-8915

Houses/offices to clean, available evenings/weekends, gift certificates available. 777-8595 leave message

One to two tickets to Auburn vs. Furman homecoming game, Nov. 7. 777-0606.

Refrigerator in good condition. 679-8110

Observatory Dome, Ash Dome or Observa-Dome. 830-0223

Used Acura Legend, early- to mid-1990's models, good running condition. 698-6384

### *Free*

Firewood, oak, already cut and split, you haul, located SE Huntsville. 883-8378

1994 Jeep Grand Cherokee service manual. 655-3324

### *Found*

Cosmetic bag, North Marshall roadway near Building 4203, cash inside. 544-4680

## Lightfoot *Continued from page 1*

not become distracted.

He spoke at length about his own leadership style – "I take this job very seriously, but I don't take myself very seriously" – and cited five of his leadership tenets: a positive attitude; passion for the work; a sense of humor; awareness of one's own fallibility; and keen listening skills.

Lightfoot confirmed that the selection process for a deputy director is underway. He said he will consult further in coming days with his advisors at Marshall and with NASA leadership in Washington, and expects a deputy director to be named soon.

He also addressed employee concerns about the impending report of the Augustine Committee, more formally known as the review of U.S. Human Space Flight Plans Committee, led by retired aerospace industry executive and former presidential science advisor Norman Augustine. The report, which will contain options to help set NASA's long term direction in human space flight, is expected to be available in mid-September.

However the committee's findings impact the nation's space program, Lightfoot said he is confident that Marshall will continue to play an integral role in NASA's mission. He emphasized the agency's priorities cited recently by President Obama and NASA Administrator Charles Bolden: science, technology development and space exploration, with an agency-wide emphasis on innovation and education.

The Marshall Center remains a vital NASA resource in all those areas, Lightfoot said. "We've got the skills, the tools and the capabilities, and if you don't have those, you don't have a mission," he said. "There's a lot to be done. No matter how it comes out, this team is going to be involved."

"Just keep doing what you're doing," he added. "We'll have an answer soon, and we'll deal with it as a team. As Marshall."

Lightfoot served as acting director of the center since March 2009, and was deputy director from 2007 to 2009. He began his NASA career at Marshall in 1989 as a test engineer and space shuttle technology test bed program manager.

*Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

## STS-128 *Continued from page 1*

after the first launch attempt, on Aug. 24, was thwarted by bad weather at Kennedy. It was rescheduled for the following day.

During loading of the shuttle's external fuel tank for the Aug. 25 launch attempt, a liquid hydrogen fill and drain valve located in Discovery's aft compartment failed to provide the proper indication when it was commanded to close. After the tank was drained, engineers cycled the valve five times to collect data on the valve and its associated actuator and position indicator. Both the valve and valve position indicator operated normally and all leak checks were within specification.

A team that included Marshall Center engineers spent two days analyzing the test data and developing alternative procedures to confirm that the valve is closed – should it have failed to provide the proper closed indication during launch. The Engineering Directorate's Propulsion System Department and the Shuttle Propulsion Office's System Engineering and Integration and Space Shuttle Main Engine project offices all were involved in resolving the issue.

"Because the valve is an interface between propulsion element hardware – the space shuttle main engines and external tank – we were a part of a team tasked with developing alternative procedures," said Tom Williams, Propulsion System Department manager. The team was led by the Orbiter Project Office at the Johnson Space Center in Houston. A total of 20 Marshall engineers were members of the team that also included engineers from Kennedy.

As the result of this work, the valve performed properly during launch and the alternative procedures for confirming valve performance did not have to be used.

Shuttle Discovery docked with the International Space Station on Aug. 30 and astronauts began the transfer of the Materials Science Research Rack, or MSRR, from Discovery's payload bay Aug 31. It was among 7.5 tons of supplies, science racks and equipment delivered to the space station in the Leonardo Multipurpose Logistics Module – a "moving van" used to ferry cargo back and forth to the space station.

The research rack was developed and is managed by the Marshall Center. It is the size of a large refrigerator – 6 feet high, 3.5 feet wide and 40 inches deep and weighs about 1 ton. The rack will be housed in the U.S. Destiny Laboratory Module and used for basic materials research in the microgravity environment.

"Completing the Materials Science Research Rack brings us one step closer to making the International Space Station a robust orbiting laboratory," said Jimmie Johnson, Marshall's project manager for the rack.

"Once the research rack is in place on the space station, scientists will be able to use the microgravity environment to isolate chemical and thermal properties of materials free from the effects of gravity. It will facilitate the research by providing instrumentation and thermal chambers for mixing materials, growing crystals and quenching/solidifying metals or alloys," said Johnson.

The STS-128 mission is led by veteran shuttle Commander Rick Sturckow. Kevin Ford is pilot of the mission and mission specialists include Patrick Forrester, Jose Hernandez, Danny Olivas, Christer Fuglesang and Nicole Stott. Stott will join the Expedition 20 crew aboard the space station as a flight engineer. Tim Kopra will return to Earth with the Discovery crew after almost two months at the orbiting outpost.

Discovery is targeted to undock from the space station Sept. 8. Landing is scheduled at Kennedy on Sept. 10.

*Martel, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

# Marshall engineers complete gas generator test series for Ares I


The 100th test of the J-2X workhorse gas generator was conducted Aug. 12 at Test Stand 116 at the Marshall Space Flight Center's East Test Area. The J-2X engine is being developed to power the second stage of the new Ares I rocket. Monitoring the test, above, from left are Randy Wiggins, engineering tech II with ERC Inc.; Tommy Couch, electrical tech with ERC Inc; and Louis Sprader, control engineer in Marshall's Test Laboratory. At right, smoke and steam exhaust shoot from the workhorse gas generator, which simulates the flow path inside the actual J-2X generator that will power the engine's turbomachinery. This was the third is a series of tests designed to ensure stable combustion and uniform gas temperature – helping engineers design a safer, more durable J-2X engine.


## MISSE *Continued from page 2*

forms the interface between the crew module and whatever it docks with, such as the space station or the lunar service module.

"We are hopeful the space testing of these seal materials will confirm the simulations we have already done as part of the ground testing," said Henry de Groh, a Glenn Research Center MISSE investigator. "The seal is needed to keep the air in the cabin from leaking out."

The next in the series is MISSE 7A and 7B targeted for launch on STS-129 in November. MISSE 7A and 7B will test space suit materials for use on the lunar surface and materials for the new solar arrays being designed for Orion.

Naval Research Laboratory scientist Rob Walters also noted the importance of tests on MISSE for improving the development of future satellite systems.

"MISSE-7A and 7B include solar cell experiments, an advanced camera system and particle radiation effects studies on cutting-edge microprocessor technologies," said Walters. "The deployment of MISSE-7 will mark a tremendous evolution of the MISSE program from simple, passive material experiments to a complex, active experiment platform providing rapid access to space, real-time data telemetry and sample return."

*Meggs, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

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